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BOOK REVIEW

Advances in Temperate Agroforestry, **Edited by** Maria Rosa Mosquera-Losada, Universidade de Santiago de Compostela, Spain; Ladislau Martin, Embrapa, Brazil; Anastasia Pantera, Agricultural University of Athens, Greece; Allison Chatrchyan, Cornell University, USA. ISBN: 9781801467193, £145.00, 2025, 354 pp. (Series No. 156).

This book completely surveys temperate agroforestry systems. These now receive more attention as we face combined challenges from climate change, soil degradation and food insecurity. The book reflects the multi-dimensional nature of agroforestry research and brings together contributions from different fields (including agronomy, ecology, forestry, soils or environmental economics) into a single volume.

This book identifies a key problem: Traditional agricultural systems based on specialization and intensification are approaching their limits of sustainability. The shrinking of biodiversity, soil organic matter loss and increased vulnerability to climatic stress all signal a call for wider integration. In this sense, temperate agroforestry is not merely a small-scale sub-strategy but an innovative intermediate system that combines aspects of agricultural production with the provision of functions and services provided by trees in natural ecosystems.

One of the book's strengths is its multi-scale perspective. Instead of being restricted to field-level processes, the authors generalize up to landscape level issues pertaining to ecological connectivity and ecosystem service provision. Seen in this broader context, agroforestry works well as a way of organizing agricultural landscapes; it is more than merely practices and approaches that can be applied at a local scale.

The chapters reviewing silvoarable systems, with a particular focus on alley cropping, give in-depth information about tree–crop–soil interactions. They document positive impacts on soil structure, water infiltration and erosion control. Other microclimate regulation by trees includes reduced evapotranspiration and protection of crops from wind. The authors do not ignore the complexity of these systems and the fundamental difficulty of competition for light and water.

Likewise, the discussions on silvopastoral systems reflect both opportunities and limitations/constraints. Planting shade trees in grazing systems can have benefits for animals (reducing heat stress) and land productivity. But mechanization, and the trade-off between forage produced against tree growth have been identified correctly as possible constraints.

The book also makes an important contribution to the topic of ecosystem services. Carbon sequestration, biodiversity and soil fertility are the subjects of several chapters that demonstrate how agroforestry systems can play a significant role in climate change mitigation. The results seem extremely context-dependent, varying with climate, soil types and species choice. Broad-scale generalizations are difficult.

The modelling and simulation tools are methodologically important because they allow us to explore long-term system performance under all kinds of management strategies. But, these models typically depend on oversimplified approximations of reality and may not be able to describe the complexity of biological interactions present in real systems.

The economic part is introduced progressively. Several chapters evaluate the economic viability of agroforestry systems and indicate that, although they may entail steep start-up costs with delayed payoffs, they could provide more stable long-term incomes. These analyses do not all include transition costs or the institutional barriers for farmers and so are of limited practical relevance.

Since this book is largely centred on Europe and northern North America, it is uncertain to what extent its conclusions will apply elsewhere, in regions such as Mediterranean, tropical or dryland environments that can impose quite different constraints [1]. Furthermore, the social or anthropological aspects are fairly under-researched too. Data on such matters would enrich these analyses. Farmer perceptions, adoption dynamics and land governance are easily glossed over but are crucial for understanding why agroforestry is rarely adopted in practice. Perhaps these matters can be included in a revised edition of this book, which could perhaps also be supplied with a more ‘applied’ character, to commend the data to practitioners and policy-makers.

In general, researchers will find this to be a major work. Not only does it compile existing knowledge but it also identifies key priorities for the future research agenda in relation to optimizing agricultural systems under environmental change. Thus, the book makes a very strong case for Agroforestry as playing an integral role in sustainable agricultural systems rather

than just being a small player. Nevertheless, it would improve its global relevance if the focus were widened to include more socio-economic contexts and perspectives.

References

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